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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
08/936.510	09/24/97	KIM	Y 06394.0022

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MM12/0609

EXAMINER

KIM, J

ART UNIT

PAPER NUMBER

2871

DATE MAILED: 06/09/99

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Office Action Summary

Application No.
08/936,510

Applicant(s)
Kim

Examiner
Joanne Kim

Group Art Unit
2871



☒ Responsive to communication(s) filed on May 4, 1999

☒ This action is **FINAL**.

☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

A shortened statutory period for response to this action is set to expire 3 month(s), or thirty days, whichever is longer, from the mailing date of this communication. Failure to respond within the period for response will cause the application to become abandoned. (35 U.S.C. § 133). Extensions of time may be obtained under the provisions of 37 CFR 1.136(a).

Disposition of Claims

☒ Claim(s) 1-39 is/are pending in the application.

Of the above, claim(s) 2 and 5 is/are withdrawn from consideration.

☐ Claim(s) _____ is/are allowed.

☒ Claim(s) 1, 3, 4, and 6-39 is/are rejected.

☐ Claim(s) _____ is/are objected to.

☐ Claims _____ are subject to restriction or election requirement.

Application Papers

☐ See the attached Notice of Draftsperson's Patent Drawing Review, PTO-948.

☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

☐ The proposed drawing correction, filed on _____ is ☐ approved ☐ disapproved.

☐ The specification is objected to by the Examiner.

☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

☐ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d).

☐ All ☐ Some* ☐ None of the CERTIFIED copies of the priority documents have been
☐ received.

☐ received in Application No. (Series Code/Serial Number) _____.

☐ received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

*Certified copies not received: _____.

☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

☒ Notice of References Cited, PTO-892

☐ Information Disclosure Statement(s), PTO-1449, Paper No(s). _____

☐ Interview Summary, PTO-413

☐ Notice of Draftsperson's Patent Drawing Review, PTO-948

☐ Notice of Informal Patent Application, PTO-152

--- SEE OFFICE ACTION ON THE FOLLOWING PAGES ---

Art Unit: 2871

1. The amendment to the rejection dated 5/4/99 has been received and entered.

Claims 2 and 5 have been canceled.

DETAILED ACTION

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over Sugiyama et al. (U.S. Patent #5,757,455) in view of Toko (U.S. Patent #5,793,459).

Sugiyama et al. disclose a liquid crystal display in figure 10, comprising a first and second substrates; a liquid crystal layer between the first and second substrates (column 1, lines 66-67; column 2, lines 1-2); at least one uniaxial optical compensation film (48 or 49) which can be either negative type or positive type formed over the substrate (column 9 lines 51-59); a first alignment film with a plurality of first alignment direction, where at least two of the plurality of first alignment directions are either perpendicular or parallel to one another (figure 6G), formed on the first substrates and a second alignment film with a alignment direction perpendicular to the first alignment direction formed on the second substrate (column 2, lines 5-13). Sugiyama et al. also

Art Unit: 2871

disclose a method of manufacturing such device including a method of forming the alignment layer including rubbing or exposing number of times in accordance with the number of the alignment directions to polarized ultraviolet rays to form the alignment directions (column 4, lines 28-49, column 5, lines 26-28).

Sugiyama et al. disclose all the limitations of above claims except for the liquid crystal display device being a reflective type with a reflective electrode formed over the first substrate and exposing the alignment layer to non polarized ultraviolet light to form the alignment directions.

Toko (U.S. Patent #5,793,459) disclose a method of manufacturing a liquid crystal display device including rubbing or exposing to polarized light or non polarized light to form the alignment direction (column 4, lines 13-21). It would have been obvious to one of ordinary skill in the art at the time of the invention to expose the alignment layer to polarized or non-polarized light to form the alignment direction of the alignment layer of the display device disclosed by Sugiyama et al. since both exposing to the polarized and non polarized light cause the same effect, forming the alignment direction as described by Toko.

Also, it is well known to one of ordinary skill in the art at the time of the invention that a liquid crystal display device can be made either a transmissive type by forming a pixel electrode made of a transparent conductive film such as ITO or a reflective type by forming a pixel electrode made of a reflective conducting film such as Al. See Izumi (U.S. Patent #5,754,267), Lu et al. (U.S. Patent #5,870,164), Shirai (U.S. Patent #4,405,208). Therefore, it would have

Art Unit: 2871

been obvious to one of ordinary skill in the art at the time of the invention to convert the display device disclosed by Sugiyama et al. to the reflective type display device by replace a pixel electrode (12b) formed on the first substrate with a reflective electrode.

Response to Arguments

3. Applicant's arguments filed on 5/4/99 have been fully considered but they are not persuasive. Applicant argued that Yeh et al. fails to specifically disclose that a reflective electrode is formed on one of the substrates and a first alignment layer is formed over one substrate while a second alignment layer is formed over the other substrate. In column 8, lines 44-58, Yeh et al. do disclose that an alignment layer is formed on one of the substrates and the other alignment layer is formed on the other substrate. Also, without being specifically disclosed, one should have realized that forming a reflective electrode on one of the substrates and a first alignment layer is formed over one substrate while a second alignment layer is formed over the other substrate is well known in the field so that it is unnecessary to even disclose. Also, one should have realized that a liquid crystal display device having reflective electrode on both of the substrates would not function as a display device. The same argument applies to the applicant argument pointing that Yeh et al. fails to teach "an alignment layer having a plurality of alignment directions". An alignment layer having one or more alignment directions is well known in the art at the time of the invention and also, it is disclose by Sugiyama et al.

Art Unit: 2871

Applicant also argues that Toko is completely silent with respect to any reflective type liquid crystal display or any alignment layer having a plurality of alignment directions. Examiner applies same argument as above that any liquid crystal display device can be made to be a reflective type or a transmissive type depending on whether a reflective conductive film or a transmissive conductive film is used for pixel electrode is so well known that doesn't need to be discussed.

Also, applicant argue that Sugiyama et al. is directed to a hybrid alignment type liquid crystal display having properties that are similar to conventional TN type (transmissive) liquid crystal display which are dissimilar from reflective type display and the dissimilarity between these two types of liquid crystal display s would have kept one of ordinary skill in the art away from the teachings of Sugiyama et al. First of all, the conventional TN (twist nematic) liquid crystal display device can be either a reflective or a transmissive as examiner pointed out earlier and both of the types can have the same structure and the same manufacture method except for one having a transmissive conductive film and the other having a reflective conductive film as a pixel electrode. Therefore, one of ordinary skill in the art can apply the teaching of Sugiyama et al. to the reflective type display device.

Art Unit: 2871

Conclusion

4. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

a shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

5. Any inquire concerning this communication or earlier communications from the examiner should be directed to Joanne Kim whose telephone number is (703) 305-0420.

Any inquire of a general nature of relating to the status of this application or proceeding should directed to the group receptionist whose telephone number is (703) 308-1615.

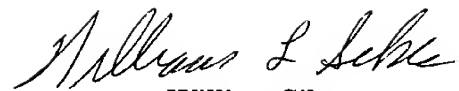
Application/Control Number: 08/936510

Page 7

Art Unit: 2871

JK

May 27, 1999

A handwritten signature in cursive script, appearing to read "William L. Sikes".

William Sikes
Supervisory Patent Examiner
Technology Center 2800